REMARKS

Claims 1-46 remain in this application. No claims have been cancelled. Claims 1, 11, 21, 29, 37 and 42 have been amended.

Applicant thanks the Examiner for the detailed study of the application and prior art. At the outset, Applicant has amended the independent claims 1, 11, 21, 29, 37 and 42 to overcome the informality for the unclear recitation regarding the x/y axis and has substituted that recitation with the phrase "video source values of pixel width and pixel height" for clarification and consistency with other recitations in the claim.

Applicant notes that the present invention advantageously overcomes the disadvantages of the prior art in which the "zooming" function increases a magnification level by a fixed arbitrary amount, but does not allow a user to "pan" a zoomed image in "real-time" and does not provide any user with the capability to increase or decrease the zoom level in a perceptibly continuous fashion.

The present claimed invention overcomes the disadvantages of these prior art systems. The amended independent claims set forth the patentable features of the present invention. Independent claims recite that video data is generated as a video data stream and displayed on a video display at a predetermined aspect ratio. During a playback or

pause mode, for example, video source values of pixel width and pixel height to be displayed are obtained.

The present invention determines the smallest integer increment on the video source values of pixel width and pixel height that will maintain the desired aspect ratio by using a greatest common denominator to reduce the ratio to the lowest integer. In accordance with the present claimed invention as now set forth in this Amendment, if the area of video source data does not correspond one-to-one with the area of the destination region, the video source data is scaled. This is accomplished by calculating a new width and height as in current pixel width and height and width and height increment to be displayed and fixing an x and y position as fixed x and y center points minus or plus any respective new width and height divided by two, such as to allow an increase or decrease in the zoom level in a continuous fashion.

The cited prior art does not disclose or suggest the present claimed invention set forth in this Amendment either singularly or in combination.

Applicant notes the rejection of claims 1-3, and 11-13 as obvious over U.S. Patent No. 6,407,723 to Okuno et al. (hereinafter "Okuno"), in view of U.S. Patent No. 5,453,846 to Tsao et al. (hereinafter "Tsao"), U.S. Patent No. 6,178,272 to Segman, and U.S. Patent No. 6,437,787 to Wu. Other claims were rejected over the combination of those

references in view of U.S. Patent No. 6,185,476 to Sakai, U.S. Patent No. 6,585,594 to Togo et al. (hereinafter "Togo"), U.S. Patent No. 6,456,329 to Tinker et al. (hereinafter "Tinker"), U.S. Patent No. 5,960,126 to Nielsen et al. (hereinafter "Nielsen"), and U.S. Patent No. 5,214,519 to Faulhaber et al. (hereinafter "Faulhaber").

Applicant brings to the attention of the Examiner that in paragraph 17, the Examiner refers to Nielsen, but in paragraph 18 when Nielsen should be discussed, the Examiner instead mentions Faulhaber in the argument.

Applicant notes that the base reference to Okuno is still directed to increasing the magnification level by a fixed arbitrary amount. Okuno teaches opposite from the present claimed invention, which allows the increase or decrease in zoom level in a continuous fashion. This fixed zoom level is clearly set forth in Okuno in which a simple scale-up image is provided, but more particularly, a controller judges whether a decimation is required. This is clear because Okuno uses a driving circuit that sequentially displays individual frames of an image according to scale-up image data and permits synchronization with dessimated vertical synchronizing signals.

As to the cited Tsao reference, it scales rasterized images in the horizontal and vertical direction and expands or contracts an image in a best fit mode to provide the ideal

amount of scaling to coincide with the physical requirements of an output device. It is not directed to increasing or decreasing the zoom level in a perceptibly continuous fashion. Instead, Tsao provides an image scale-up in a non-destructive method as clearly set forth in column 1, starting at line 55, which corresponds to an object of the invention.

The Examiner also cites Segman and argues that Segman shows that a video system can determine the smallest integer increment on video source values to maintain the desired aspect ratio by using a greatest common denominator and reducing the ratio to a low integer. Applicant admits that Segman concerns itself with a scale-up/scale-down image resolution conversion and notes that video screens can have set ratios, for example, 4:3 corresponding to 480 rows by 640 columns or 1200 rows by 1600 columns as clearly set forth in column 1, starting at line 29-43. Segman is directed to a different problem, i.e., using non-linear or linear pixel position control functions relating an output image pixel grid to an input image pixel grid where the resolution of each grid is different. In Segman, an output image grid is related to an output image grid coordinate system. An input image grid has an input image grid coordinate system. Without going into details, a value for different output pixels located in the output image grid is calculated from a differential prescription for a two-dimensional image featuring the pixels

and featuring n^2 for the neighboring pixels with the differential prescription, including an inner multiplication between two vectors with a multiplication of the differences between each real position coordinates defined over a two-dimensional system.

The present claimed invention, on the other hand, is a much different system and method. When the area of video source data does not correspond one-to-one with the area of the destination region, the video source data is scaled. This is accomplished by calculating a new width and height as in current pixel width and width and height increment to be displayed and fixing an x/y position as fixed x and y center points minus or plus any respective new width and height divided by two. This allows the increase or decrease in the zoom level in a continuous fashion. Nowhere do the three cited references of Okuno, Tsao or Segman disclose or suggest this feature.

As to the other cited patent to Wu, it discloses a display control that is operative with a post filter and four-tap multiphase filter for MPEG1 Standard Image Format (SIF) interpolations such as for DVD or other video. It is specifically directed to controlling a single chip Application Specific Integrated Circuit (ASIC) that has a reduced instruction set central processing unit and digital video display pipeline. A spatial mode for this pipeline is

determined for setting horizontal filter parameters for a chroma location and executing code with a reduced instruction set to set vertical filter parameters. Any resizing could occur in increments. Nowhere does Wu disclose or suggest in combination with the other references the present claimed invention that allows an increase or decrease in the zoom level in a continuous fashion.

As to Sakai, it is directed to a standard prior art system using a video display in which a mapping joystick can be moved for increasing the video size. Sakai nowhere discloses the present claimed invention, but instead is directed to the standard prior art feature of using a joystick to allow "zooming" of a magnification level by a fixed arbitrary amount. Applicant has recognized that joysticks have been used in the past for zooming, but not in the manner of the present claimed invention. Indeed, Sakai is directed more to a method and system for mapping joystick movements to cursor movements and not to zooming, as clearly set forth in columns 71-74.

Togo may show some type of game that uses a DVD-ROM or CD-ROM for adventure play, but nowhere suggests the present claimed invention. Indeed, Togo is not directed to any continuous zooming as in the present claimed invention. Togo is directed to overcoming the problem in which a player had to progress a story until that portion moves to an area on a game

field, which is not hidden by a selection field or a caption field. For example, there are situations where a player cannot confirm a necessary portion of a game field in the case of necessity in the course of the story. Togo is not directed to a continuous zooming function, and if any zooming occurs, it would be in an incremental fashion.

Applicant admits that Tinker may show some deinterlacing of video data to obtain non-interlaced image frames, but Tinker is directed to removing blank lines of an image field and interpolating pixel values for lines in the positions of the blank lines to reduce vertical jitter. Nowhere does Tinker suggest the present claimed invention.

Applicant notes that paragraphs 17 and 18 cite to Nielsen, but discuss Faulhaber. Applicant notes that Nielsen is directed to providing relevant-enhanced image reduction in computer systems for reducing images by cropping and scaling an image and determining a total reduction factor. Nielsen uses a cropping reduction factor, but nowhere discloses the present claimed invention or suggests any of the steps and function of the present claimed invention either singularly or in combination.

As to Faulhaber, it is directed to modifying a digitally stored image by expanding the source image data and adjusting the input to an output raster display device. Faulhaber overcomes the problem where lines in a vertical

direction become separated and the spaces between lines start becoming visible. This would allow an arbitrarily digitally stored image to be placed into a display medium. A ratio R in at least one dimension is obtained and a first integer I adjacent to the ratio R is obtained. The source image is digitally expanded by expanding the source image data by a factor equal to the calculated integer I to generate an expanded output image data and the quotient of the calculated integer I to the ratio R is calculated to obtain a sampling factor F where F=I/R. The expanded output data is sampled at a sampling rate controlled by the sampling factor and the sampled output data drives an output display device. Although this may suggest determining an integer increment that maintains a desired aspect ratio using some type of common denominator, it does not suggest the present claimed invention with the scaling the video source data by calculating a new width and height as in current pixel width and height and width and height increment to be displayed and fixing an x and y position as fixed x and y center points minus or plus any respective new width and height divided by two such as to allow increase or decrease in the zoom level in a continuous fashion.

Applicant contends that the present claimed invention is patentable over the cited prior art, which

nowhere singularly or in combination discloses or suggests the present claimed invention.

If the Examiner has any questions or suggestions for placing this case in condition for allowance, the undersigned attorney would appreciate a telephone call.

Respectfully submitted,

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